

ROCK LINED CHUTE DESIGN DATA

Landuser: _____ County: _____
Designed by: _____ Date: _____ Checked by: _____ Date: _____

Rock Lined Chute:

Controlled Drop (F):

F = Entrance Elev. _____ - Outlet Elev. _____ F = _____ feet
Chute Profile Slope (S): _____ S = _____ :1
Chute Side Slopes (Z): _____ Z = _____ :1
Design Discharge (Q_{chute}): From IN-ENG-10 or Ohio Engineering, Q_{chute} = _____ cfs
Rock Size (d_{50}): _____ d_{50} = _____ inches
Allowable Velocity (V_s): From Fig. IN-6-8, EFH, V_s = _____ fps
Bottom Width (b): _____ b = _____ feet
Chute Flow Depth (d): From Fig. IN-6-9, EFH, d = _____ feet
*Check that $b/d < 50$ b/d = _____
Design Velocity (V): $V = Q/A = Q/[d(b+zd)]$ V = _____ fps
*Check that $V < V_s$ ☐ YES ☐ NO

Entrance Section:

Total Depth at Entrance (d_e) $\geq (d+1)$ d_e = _____ feet
Entrance Length (L_e) $\geq 5(d_e)$ L_e = _____ feet
Upstream Entrance Width (b_e) = $(b + L_e)$ b_e = _____ feet

Chute Section:

Total Depth in Chute (d_c) $\geq (d+0.5)$ d_c = _____ feet
Chute Length (L_c) = $(F) * (S)$ L_c = _____ feet

Outlet Section:

Total Depth in Outlet (d_o) $\geq (2d+0.5)$ d_o = _____ feet
Outlet Length (L_o) $\geq [6+3(V-5)]$ (6' Min.) L_o = _____ feet

Approach Channel:

Grade: _____ Grade = _____ %
Manning's "n" or Retardance: _____ "n" or Retardance = _____
Bottom Width (bw): _____ bw = _____ feet
Top Width (T): _____ T = _____ feet
Side Slopes: _____ Side Slopes = _____ :1
Approach Channel Depth: _____ Depth = _____ feet
Design Velocity (v): _____ v = _____ fps

Emergency Spillway:

Total Design Discharge (Q_{total}): _____ Q_{total} = _____ cfs
From IN-ENG-10 or Ohio Engineering,
Emergency Spillway Discharge (Q_e): _____ Q_e = _____ cfs
 $Q_e = Q_{total}$ _____ - Q_{chute} _____
Emergency Spillway Crest Elevation: _____ ES = _____ feet
ES = Entrance Elev. _____ + Approach chan. depth _____
Emergency Spillway Level Section: _____ L = _____ feet
Emergency Spillway Exit Slope: _____ So = _____ %
Erosion Resistant Soil? ☐ YES ☐ NO
Vegetative Cover, Stand, and Height: _____
Vegetative Retardance: _____ Retardance = _____
Maximum Allowable Velocity: From Ch. 11, EFH, V_{max} = _____ fps
Hp: _____ Hp = _____ feet
Discharge per foot of width: _____ q = _____ cfs/ft
Bottom Width: $b_s = Q_e/q$ b_s = _____ feet

Top of Fill:

Top of Settled Fill Elevation is the *greater* of:

1. Entrance Elev. _____ + d_e _____ + freeboard (0.5') = _____
2. ES Crest Elev. _____ + Hp _____ + freeboard (0.5') = _____

Use Top of Settled Fill Elevation = _____